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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/582,990

09/15/2006

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EXAMINER

KHARE, ATUL P

ART UNIT

PAPER NUMBER

1791

NOTIFICATION DATE

DELIVERY MODE

07/22/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

OfficeAction25944@oliff.com
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Office Action Summary	Application No. 10/582,990	Applicant(s) SATO ET AL.	
	Examiner ATUL KHARE	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13, 20 and 21 is/are pending in the application.
- 4a) Of the above claim(s) 1-10 and 21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-13 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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4. Claims 11-13 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bieler (US 5,891,249) in view of Yamamura et al. (US 5,277,973) and Kawai (US 5,993,733).

5. As to claims 11 and 20, Bieler teaches in a method for preparing metal matrix fiber composites: coating a (continuous) tow of fibers with metal powder particles (column 4 lines 40-46), and consolidating the coated fibers in a heated press to sinter the mixture of fibers and metal powder (column 4 lines 52-55). The fibers can be made from carbon (column 5 lines 5-9). The fiber mixture is implicitly aligned in a two-dimensional manner in the vacuum hot pressing furnace 40 since they are drawn continuously in a fiber tow (figure 1). Since the tow includes fibers that are continuous, the fibers implicitly have a length that is greater than 100 mm during the coating step. The continuous tow of fibers can be cut into pieces prior to the hot pressing step for sintering (column 5 lines 36-39). When the continuous tow of fibers are cut prior to sintering, the fibers have a continuous length that is the same as the dimension of the final composite material.

Bieler does not appear to explicitly disclose that the coating step requires immersing the tow of fibers in a suspension that includes solvent in addition to the metal powder. However, Yamamura teaches in a method for making carbon fiber composites: immersing a continuous tow of fibers in a treating liquor of adhering material (column 26 lines 40-53). The adhering material can contain fine particles of thermally stable metal particles (column 25 lines 40-62). Since the treating liquor is a liquid solution, a solvent is implicitly present. Alternatively, it would have been obvious to provide a solvent to

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disperse the particles. It would have been obvious to substitute Yamamura's coating method for Bieler's coating method as a conventional means for applying metal particles to a continuous fiber.

Modified Bieler does not appear to explicitly disclose sintering using a pulse electric current. However, Kawai teaches in a method for manufacturing a sintered product: sintering by applying pressure to a material while simultaneously supplying a pulse current through the compacted material (column 2 lines 32-40, column 2 line 66 to column 3 line 2). Suitable materials for sintering include mixtures of carbon fibers with metal powders (column 3 lines 44-47). Sintering can be performed under vacuum (column 5 lines 11-15). Thus, modified Bieler teaches a method that requires sintering of a coated fiber material, and Kawai teaches a suitable sintering operation that supplies pulsed electric current while compacting the material in a vacuum. It would have been obvious to substitute Kawai's sintering method for modified Bieler's sintering method as a conventional means for affecting sintering of a coated fiber composite material.

6. As to claim 12, Bieler teaches that the fibers can be a PAN-based carbon material (column 9 lines 45-48).

7. As to claim 13, Bieler teaches that the metal powder can be aluminum, copper, magnesium, and alloys thereof (column 5 lines 10-15).

Response to Arguments

8. Applicant's arguments with respect to claim 11 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ATUL KHARE whose telephone number is (571)270-7608. The examiner can normally be reached on Monday-Thursday 7:30 a.m. - 5:00 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571)272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ATUL KHARE/
Examiner, Art Unit 1791

/Matthew J. Daniels/
Primary Examiner, Art Unit 1791
7/16/10